CLAIM AMENDMENT

1 (original). A method of purifying juice obtained from plant material, comprising the steps of:

a. obtaining plant material;

b. removing juice from at least a portion of said plant material, wherein said juice contains sucrose, non-sucrose substances, and water, and wherein an amount of said non-sucrose substances comprise dissolved material;

c. exposing said juice to a mixture of gases;

d. transferring a portion of said dissolved material from said juice to said mixture of gases prior to addition of base;

e. generating an increased interface surface area between said juice and said mixture of gases;

f. increasing transfer rate of said dissolved material from said juice to said mixture of gases; and

g. reducing said dissolved material within said juice.

2 (original). A method of purifying juice obtained from plant material as described in claim 1, wherein said step of removing juice from at least a portion of said plant material comprises diffusing said plant material to obtain said juice.

3 (original). A method of purifying juice obtained from plant material as described in claim 1, wherein said step of removing juice from at least a portion of said plant material comprises milling said plant material to obtain said juice.

4 (original). A method of purifying juice obtained from plant material as described in claim 1, wherein said plant material is selected from the group consisting of sugarcane, sugar beets, and sweet sorghum.

5 (original). A method of purifying juice obtained from plant material as described in claim 1, wherein said non-sucrose substances comprise at least one substance selected from the group consisting of insoluble plant material, soluble plant material, soil particles, fertilizer, saccharides other than sucrose, organic non-sugars, inorganic non-sugars, dissolved gases, organic acids, inorganic acids, proteins, phosphates, carbonate ions, bicarbonate ions, metal ions, pectins, coloring agents, saponins, wax, fats, and gums.

6 (original). A method of purifying juice obtained from plant material as described in claim 1, wherein at least a portion of said dissolved material in said juice comprises volatile material.

7 (original). A method of purifying juice obtained from plant material as described in claim 1, wherein said dissolved material in said juice comprises dissolved gases.

8 (original). A method of purifying juice obtained from plant material as described in claim 7, wherein said dissolved gases in said juice are selected from the group consisting of carbon dioxide and sulfur dioxide.

9 (original). A method of purifying juice obtained from plant material as described in claim 7, wherein dissolved gases in said juice comprise carbon dioxide in a form selected from the group consisting of carbon dioxide gas, carbonate ion, bicarbonate ion, and carbonic acid.

10 (original). A method of purifying juice obtained from plant material as described in claim 7, wherein dissolved gases in said juice comprise sulfur dioxide in a form selected from the group consisting of sulfur dioxide gas, sulfuric acid, and sulfurous acid.

11 (original). A method of purifying juice obtained from plant material as described in claim 1, wherein dissolved material comprises aqueous acids.

12 (original). A method of purifying juice obtained from plant material as described in claim 11, wherein said aqueous acids are selected from the group consisting of phosphoric acid, hydrochloric acid, sulfuric acid, citric acid, oxalic acid, succinic acid, fumaric acid, lactic acid, glycolic acid, pyrrolidone-carboxylic acid, formic acid, acetic acid, butyric acid, maleic acid, and lactic acid.

13 (original). A method of purifying juice obtained from plant material as described in claim 1, wherein said mixture of gases is selected from the group consisting of atmospheric gases, filtered atmospheric gases, air, and filtered air.

14 (original). A method of purifying juice obtained from plant material as described in claim 1, wherein said step of increasing interface surface area between said juice and said mixture of gases comprises agitating said juice.

15 (original). A method of purifying juice obtained from plant material as described in claim 1, wherein said step of increasing interface surface area between said juice and said mixture of gases comprises spraying said juice.

16 (original). A method of purifying juice obtained from plant material as described in claim 1, wherein said step of increasing interface surface area between said juice and said mixture of gases comprises sparging said juice with said mixture of gases.

17 (original). A method of purifying juice obtained from plant material as described in claim 1, wherein said step of increasing interface surface area between said juice and said mixture of gases comprises injecting said mixture of gases into said juice.

18 (original). A method of purifying juice obtained from plant material as described in claim 1, wherein said step of increasing interface surface area between said juice and said mixture of gases comprises gas stripping said juice with said mixture of gases.

19 (original). A method of purifying juice obtained from plant material as described in claim 1, wherein said steps of:

c. exposing said juice to a mixture of gases;

d. transferring a portion of said dissolved material from said juice to said mixture of gases prior to addition of base;

e. increasing interface surface area between said juice and said mixture of gases;

f. increasing transfer rate of said dissolved material from said juice to said mixture of gases; and

g. reducing dissolved material within said juice

comprises injecting said mixture of gases into a stream of juice to form a mixed stream of said juice and said mixture of gases, whereby at least some of said dissolved material transfers from said stream of juice into said mixture of injected gases.

20 (original). A method of purifying juice obtained from plant material as described in claim 19, wherein said stream of juice comprises a continuous stream of juice.

21 (original). A method of purifying juice obtained from plant material as described in claim 20, wherein said mixed stream comprises a continuous mixed stream.

22 (original). A method of purifying juice obtained from plant material as described in claim 21, further comprising the step of generating a reduced pressure on said mixed stream.

23 (original). A method of purifying juice obtained from plant material as described in claim 22, further comprising the step of configuring said stream of juice to generate said reduced pressure on said mixed stream.

24 (original). A method of purifying juice obtained from plant material as described in claim 19, further comprising the step of separating said dissolved material transferred to said mixture of gases from said mixed stream.

25 (original). A method of purifying juice obtained from plant material as described in claim 24, further comprising the step of generating a gas flow of said mixture of gases separated from said mixed supply stream in response to a source of reduced pressure.

26 (currently amended). A method of purifying juice obtained from plant material as described in claim 19[[, 23, or 25]], further comprising the step of reducing the pressure on said interface surface area between said juice and said mixture of gases to less than atmospheric pressure.

27 (original). A method of purifying juice obtained from plant material as described in claim 1, wherein said step of reducing said dissolved material within said juice comprises reducing concentration of hydronium ion in said juice.

28 (original). A method of purifying juice obtained from plant material as described in claim 1, wherein said step of reducing said dissolved material within said juice comprises reducing capacity of said juice to generate hydronium ion.

29 (original). A method of purifying juice obtained from plant material as described in claim 1, wherein said step of reducing said dissolved material within said juice further comprises raising the pH value of said juice an amount selected from the group consisting of 0.1 pH, 0.2 pH, 0.3 pH, 0.4 pH, 0.5 pH, 0.6 pH, 0.7 pH, 0.8 pH, 0.9 pH, 1.0 pH, 1.1 pH, 1.2, pH1.3, pH1.4, pH1.5, pH1.6, pH1.7, pH1.8, pH1.9, 2.0 pH.

30 (original). A method of purifying juice obtained from plant material as described in claim 29, further comprising the step of reducing the amount base added to a volume of said juice having reduced dissolved material to establish an initial pH value of between about 11.0 and about 12.0.

31 (original). A method of purifying juice obtained from plant material as described in claim 29, further comprising the step of reducing the amount base added to a volume of said juice having reduced dissolved material to establish an initial pH value of between about 11.5 and about 12.5.

32 (original). A method of purifying juice obtained from plant material as described in claim 29, further comprising the step of reducing the amount base added to a volume of said juice having reduced dissolved material to establish a pH value corresponding to an iso-electric point of at least a portion of said non-sucrose substances in said juice.

33 (original). A method of purifying juice obtained from plant material as described in claim 1, wherein said step of reducing said dissolved material within said juice comprises reducing aqueous acids formed by dissolved gases in said juice.

34 (original). A method of purifying juice obtained from plant material as described in claim 1, further comprises the step of removing at least a portion of insoluble materials from said juice prior to said step of exposing said juice to a mixture of gases.

35 (original). A method of purifying juice obtained from plant material as described in claim 1, further comprises the step of removing at least a portion of insoluble materials from said juice after said step of exposing said juice to a mixture of gases.

36 (original). A method of purifying juice obtained from plant material as described in claim 1, further comprises the step of adding a first amount of base to said juice after said step of reducing said dissolved material within said juice.

37 (original). A method of purifying juice obtained from plant material as described in claim 36, wherein said step of adding a first amount of base to said juice after said step of reducing said dissolved material within said juice comprises the step of pre-liming said juice.

38 (original). A method of purifying juice obtained from plant material as described in claim 36, wherein said step of adding a first amount of base to said juice after said step of reducing said dissolved material within said juice comprises the step of cold main liming said juice.

39 (original). A method of purifying juice obtained from plant material as described in claim 36, wherein said step of adding a first amount of base to said juice after said step of reducing said dissolved material within said juice comprises hot main liming said juice.

40 (original). A method of purifying juice obtained from plant material as described in claim 36, wherein said step of adding a first amount of base to said juice after said step of reducing said dissolved material within said juice comprises adding a reduced amount of base to said juice based upon reduction of said dissolved material within said juice.

41 (original). A method of purifying juice obtained from plant material as described in claim 36, further comprising the step of adding a second amount of base to said juice after said step of reducing said dissolved material within said juice comprises the step of cold main liming said juice.

42 (original). A method of purifying juice obtained from plant material as described in claim 41, wherein said step of adding a second amount of base to said juice after said step of reducing said dissolved material within said juice comprises the step of hot main liming said juice.

43 (original). A method of purifying juice obtained from plant material as described in claim 41, wherein said step of adding a first amount of base to said juice after said step of reducing said dissolved material within said juice comprises adding a reduced amount of base to said juice based upon reduction of said dissolved material within said juice.

44 (original). A method of purifying juice obtained from plant material as described in claim 41, further comprising the step of adding a third amount of base to said juice after said step of reducing said dissolved material within said juice comprises the step of hot main liming said juice.

45 (original). A method of purifying juice obtained from plant material as described in claim 44, wherein said step of adding a third amount of base to said juice after said step of reducing said dissolved materials within said juice comprises the step of intermediate liming said juice.

46 (original). A method of purifying juice obtained from plant material as described in claim 44, further comprising adding a fourth amount of base to said juice after said step of reducing said dissolved material within said juice.

47 (currently amended). A method of purifying juice obtained from plant material as described in claim 36[[, 41, 44, or 46]], wherein said base is selected from the group consisting of calcium oxide, calcium hydroxide and milk of lime.

48 (currently amended). A method of purifying juice obtained from plant material as described in claim 36 [[or 41]], further comprising the step of carbonating said juice with a first amount of gas.

49 (original). A method of purifying juice obtained from plant material as described in claim 48, wherein said first amount gas is selected from the group consisting of atmospheric gases, air, and carbon dioxide, .

50 (original). A method of purifying juice obtained from plant material as described in claim 48, further comprising the step of forming precipitates from said base and said first amount of gas.

51 (currently amended). A method of purifying juice obtained from plant material as described in claim 41[[or 44]], further comprising the step of carbonating said juice with a second amount of gas.

52 (original). A method of purifying juice obtained from plant material as described in claim 51, wherein said gas is selected from the group consisting of atmospheric gases, air, and carbon dioxide.

53 (original). A method of purifying juice obtained from plant material as described in claim 51, further comprising the step of forming precipitates from said base and said second amount of gas.

54 (currently amended). A method of purifying juice obtained from plant material as described in claim 44 [[or 46]], further comprising the step of carbonating said juice with a third amount of gas.

55 (original). A method of purifying juice obtained from plant material as described in claim 54, wherein said gas is selected from the group consisting of atmospheric gases, air, and carbon dioxide.

56 (original). A method of purifying juice obtained from plant material as described in claim 54, further comprising the step of forming precipitates from said base and said third amount of gas.

57 (original). A method of purifying juice obtained from plant material as described in claim 50, further comprises the step of trapping at least a portion of said non-sucrose substances in said juice with said precipitates.

58 (original). A method of purifying juice obtained from plant material as described in claim 53, further comprises the step of trapping at least a portion of said non-sucrose substances in said juice with said precipitates.

59 (original). A method of purifying juice obtained from plant material as described in claim 56, further comprises the step of trapping at least a portion of said non-sucrose substances in said juice with said precipitates.

60 (original). A method of purifying juice obtained from plant material as described in claim 57, further comprises the step of separating said precipitates trapping said non-sucrose substances from said juice.

61 (original). A method of purifying juice obtained from plant material as described in claim 58, further comprises the step of separating said precipitates trapping said non-sucrose substances from said juice.

62 (original). A method of purifying juice obtained from plant material as described in claim 59, further comprises the step of separating said precipitates trapping said non-sucrose substances from said juice.

63 (original). A method of purifying juice obtained from plant material as described in claim 60, further comprises the step of reducing the amount of water in said juice.

64 (original). A method of purifying juice obtained from plant material as described in claim 61, further comprises the step of reducing the amount of water in said juice.

65 (original). A method of purifying juice obtained from plant material as described in claim 62, further comprises the step of reducing the amount of water in said juice.

66 (original). A method of purifying juice obtained from plant material as described in claim 63, further comprises the step of crystallizing sucrose in said juice.

67 (original). A method of purifying juice obtained from plant material as described in claim 64, further comprises the step of crystallizing sucrose in said juice.

68 (original). A method of purifying juice obtained from plant material as described in claim 65, further comprises the step of crystallizing sucrose in said juice.

Claims 69-139 were canceled without prejudice in the first Preliminary Amendment.